

New Zealand Molluscan Systematics with Descriptions of New Species, Part 3

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Family MYTILIDAE

Genus **MYTILUS** Linnaeus, 1758.

Type: (Gray, 1847): *Mytilus edulis* Linn, 1758.

Mytilus aoteanus n. sp. Plate 12, Fig. 5.

1913—*Mytilus edulis*: Suter (not of Linne) Man. N.Z. Moll., p. 862.

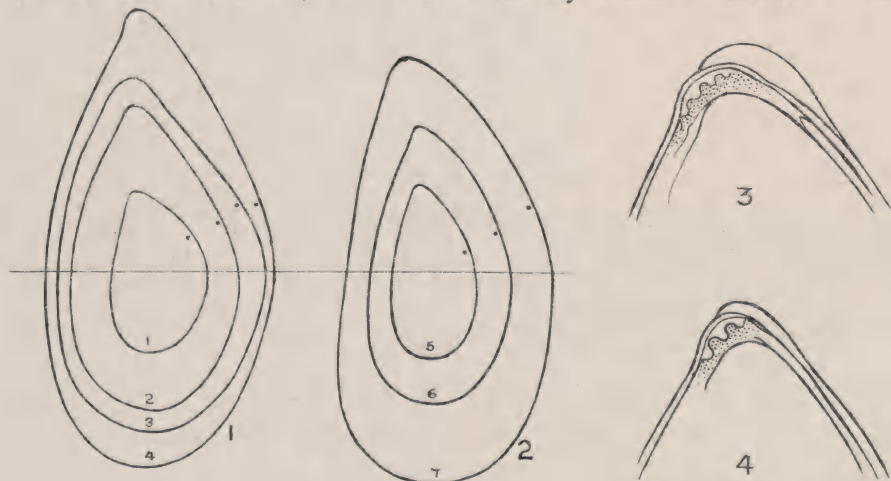
1923—*Mytilus planulatus*: Oliver Proc. Malac. Soc. Lond. 15, p. 181.

1955—*Mytilus* cf. *planulatus*: Powell, Cape Exped. Bull. No. 15, D.S.I.R., Wellington, p. 22.

Oliver (1923, l.c.) introduced the name *planulatus* to the New Zealand fauna in replacement of *edulis* Auct. (not of Linnaeus) but this shell which is wide-spread in the South of New Zealand and only of sporadic occurrence in the North has long been considered doubtfully identical with the Australian species.

The type locality for Lamarck's *planulatus* is King George Sound, Western Australia and the species ranges eastward to New South Wales and Tasmania.

There is considerable variation in Australian shells; some have narrow incurved beaks, others have broadly-rounded "*Modiolus*"-like



TEXT FIG. A.

Fig. 1. *Mytilus planulatus* Lamarck (1 and 2), Bellerive, Tasmania; (3 and 4), Semaphore, South Australia.

Fig. 2. *Mytilus aoteanus* n. sp. (5), Greymouth; (6), New Brighton; (7), Campbell Island, New Zealand.

Fig. 3. *Mytilus planulatus* Lamarck, Semaphore (hinge teeth).

Fig. 4. *Mytilus aoteanus* n. sp. Campbell Island (hinge teeth).

beaks but two features separate the Australian species from the New Zealand "*planulatus*." One of these features is the much longer dorsal slope in the Australian species which places the posterior-dorsal angle well below the middle (see Text fig. A1). This shows outlines of four Australian shells compared with outlines for three New Zealand shells (Text fig. A2) which have the angle at about the middle.

The second feature is a marked difference in the hinge teeth of Australian and New Zealand shells. In true *planulatus* these teeth, when normally developed, number five (text fig. A3) unless they are obscured by callus. In New Zealand shells the teeth never exceed three (Text fig. A4).

Another Southern mussel which seems to be related to this group is the Kerguelen Island *Mytilus desolationis* Lamy, 1936 (= *M. kerguelensis* Fletcher, 1938). This species has an even shorter dorsal slope than in New Zealand shells, which places the posterior dorsal angle well above the middle, the hinge teeth number from 4 to 7 and the epidermus is shining black rather than violet black.

The relationship between these three widely separated *Mytilus* populations is obscure for it is difficult to say which of any one of them is nearer allied in respect to the other two. They may represent regional subspecies of a wide ranging mussel but for the present it seems best to regard each of the three as separate species.

From Banks Peninsula to Dunedin albinos or partial albinos (i.e. minus the violet black pigment) are frequently seen. This tendency has not been observed in Northern populations nor in those from the Southern Islands of New Zealand. It has not been recorded either in Australian *planulatus* or observed in the Kerguelen *desolationis*.

Holotype: Auckland Museum, a specimen from Rona Bay, Wellington Harbour, Height 76 mm.; length 42 mm.; inflation 25 mm.

Anterior-post 25 mm.; dorso-ventral 50 mm.; thickness 19.5 mm. (Sumner, Albino).

"	"	28 mm.;	"	"	50 mm.;	"	18.5 mm. (Sumner).
"	"	41 mm.;	"	"	69 mm.;	"	22.0 mm. (Pohara, Nelson).
"	"	42 mm.;	"	"	76 mm.;	"	25.0 mm. (Holotype).
"	"	55 mm.;	"	"	93 mm.;	"	34.5 mm. (Auckland Is.)
"	"	63 mm.;	"	"	119 mm.;	"	51.0 mm. (Stewart Is.)

Localities: Perseverance Harbour, Campbell Island (Cape Exped.); Auckland Islands (Capt. J. Bollons); Owenga, Chatham Islands (A.W.B.P. 1933); Stewart Island (Powell coll.); Timaru (A. E. Brookes coll.); Greymouth (Powell coll.); Sumner, Canterbury (Auck. Mus.); Pohara, Golden Bay, Nelson (A.W.B.P. Dec. 1927); Rona Bay, Wellington (Auck. Mus.); Onetangi, Waiheke Island, Auckland (Auck. Mus.); Port Fitzroy, Great Barrier Island (A. E. Brookes coll.); Whangarei Heads (Auck. Mus.); Bay of Island (A. E. Brookes coll.).

Genus AULACOMYA Moersch, 1853.

Type (Ihering 1900): *Mytilus magellanicus* Lamarck.

Aulacomya maoriana (Iredale). Plate 12, Figs. 6-9.

1913—*Mytilus magellanicus*: Suter (not of Lamarck) Man. N.Z. Moll.

1915—*Mytilus maorianus*: Iredale, Trans. N.Z. Inst. 47, p. 484.

1955—*Aulacomya maoriana*: Powell Cape Exped. Bull. No. 15, D.S.I.R., Wellington, p. 23.

Iredale (l.c.) proposed *Mytilus maorianus* for the species described by Suter under *Mytilus magellanicus* Lamarck, 1819, and since a

specimen from Stewart Island in the Suter collection, now in the New Zealand Geological Survey, Wellington, can be matched with Suter's figure (Man. N.Z. Mollusca, Atlas of Plates, 1915, Pl. 56, Fig. 6) then in the absence of any designated specimen this shell must be considered the holotype of Iredale's species.

It has long been surmised that there are two regional subspecies of *maorianus*, the typical Southern shell with coarse sparse ribbing and a Cookian form with finer and more numerous ribs.

While there is some indication of this geographic pattern in a general way there are too many exceptions to warrant a hard and fast separation by subspecific nomination.

Even after allowing a fairly wide and loose area of integration and taking into account anomalies, possibly attributable to up-welling, the sculptural variation appears to be merely haphazard.

A table was prepared showing rib counts at 10 mm., 25 mm., 50 mm. and 75 mm. respectively for material covering both Southern and Northern localities. At 10 mm. the variation was small, 7-10 ribs, increasing to 13-28 at 25 mm., 18-45 at 50 mm. and 33-68 at 75 mm. The point of incidence for dichotomy of the ribbing decides whether the adult resolves into a coarsely or a finely ribbed shell and the table certainly showed that this point of incidence was very fluid even in examples from a single population.

In the figures (Plate 12) figure 9, a Nelson shell exhibited dichotomy at a very early stage, figure 7 a Timaru shell exhibits dichotomy quite late in development and figure 8, a Lyall Bay shell shows an intermediate state. The issue is further confused by a large Stewart Island example comparable with the figured Nelson shell in its sculptural density and early incidence of dichotomy.

Family TROCHIDAE

(*Trochus (Clanculus) takapunaensis* Webster, 1906)

This species was described from shell sand taken at Takapuna Auckland and in addition to the holotype now in the Auckland Museum, there was supposed to be a co-type in the Australian Museum, Sydney, but this specimen cannot now be located.

Webster (1906, T.N.Z.I., vol. 38, p. 310) quoted an opinion on this shell from Hedley as follows: "Your shell has a close resemblance to the Victorian *C. plebejus*. I believe that the transverse fold on the columella, and the absence of a biplicate tooth at that point, separated this shell from *C. plebejus*."

The holotype of Webster's species is a dead shell but it is fairly well preserved and is undoubtedly a *Mesoclanculus*, so close to the South Australian-Victorian genotype, *plebejus* that it could be that species.

The differences claimed by Hedley, whose remarks probably referred only to the co-type, do not apply to the holotype which lacks a transverse fold but does bear a biplicate tooth on the columella. The latter feature, however, is not adequately shown in Webster's figure.

Compared with a series from Corny Point, South Australia, the Takapuna shell is rather more depressed but the sculptural detail is identical.

Webster's species could be based upon an accidentally dropped shell for in my opinion the slight differences shown are not greater than could be expected in a range of specimens from several Australian localities.

Since *takapunaensis* has not been collected subsequent to Webster's original find this is a good additional reason why this species should be relegated to a suspense list.

Family HIPPONICIDAE

Genus **SABIA** Gray, 1841

Syn. Cont. Brit. Mus. ed. 43, p. 126.

Type (Gray, 1847): *Amalthea conica* Schumacher.

(= *Amalthea* Schumacher, 1817, non Rafinesque, 1815).

Sabia wyattae n. sp. Plate 12, Figs. 3, 4.

Shell similar to the Southern Australian *Hipponix australis* Quoy & Gaimard, 1835, and the Indo-Pacific *Amalthea conica* Schumacher, 1817, but more sparsely ribbed. The New Zealand shells are not fully grown but dichotomy of the radials has already developed towards the margins. A primary rib count for the three species shows 21-24 radials for *wyattae*, 25-32 for Japanese shells ascribed to *conica* and 29-35 for *australis*.

Shell small cap-shaped irregularly ovate with apex near to or projecting beyond the margin, sculptured with 21-24 irregular flexuous broad flat-topped primary radials separated by deep linear grooves. Towards the margins most of the primary radials increase by dichotomy. Margins weakly crenulated, external colour dull-white, the apex showing reddish brown, due to erosion of the outer layer. Internal colour reddish-brown, generally diffused over the middle and fading to almost white at the margins. Very small reddish-brown dots occur here and there in the troughs of the marginal crenulations. The interior is glazed and exhibits the characteristic large well marked horseshoe-shaped muscle scar. Protoconch of a smooth helicoid spiral the nucleus set almost at right angles to the long axis of the shell, followed by a greatly accelerated flattened smooth half whorl.

Length 16 mm.; breadth 12.65 mm.; height 5.7 mm. (holotype).

Locality: Tutukaka, Northland, attached to a dead shell of *Penion adusta* (Philippi) in beach drift (Mrs. J. Wyatt, 1957).

Holotype: Presented to the Auckland Museum by Mrs. Wyatt.

The New Zealand species resembles *australis* in the brown centrally clouded interior but differs in having far fewer radial ribs and a marginal to overhanging position for the apex. Japanese shells ascribed to *conica* have the brownish colour strongest as a margining band with only a small clouded area in the interior. They resemble the New

Zealand species in having a marginal tendency for the apex but the radials are again more numerous but fewer than in *australis*.

This makes the first undoubted record of a Hipponicid for the New Zealand recent fauna. Two previous records have since been rejected. They were *Hipponix hexagonus* Suter 1906 which proved to be an irregular form of *Gadinalea nivea* (Hutton, 1878) (Powell, 1924, p. 282) and *Hipponyx inexpectata* Mestayer, 1929, which is not a mollusc but a plug from a Polychaet worm (Dell 1956, p. 72).

Family BUCCINULIDAE

Genus AENEATOR Finlay, 1927.

Type (o.d.): *Verconella marshalli* Murdoch.

Aeneator galathea n. sp. Plate 12, Figs. 1, 2.

Shell rather small (38-41 mm.) solid elongate-fusiform, strongly sculptured with numerous axial folds crossed by equally numerous narrow sharply raised spiral cords. Whorls $6\frac{1}{2}$ plus a small smooth dome-shaped protoconch of about two whorls which is followed by half a whorl of closely spaced brepheic axials. Whorl outlines strongly convex medially but becoming slightly concave above over the shoulder area to a weakly developed adpressed suture. Axial folds well defined, 14 to 15 per whorl, concavely arcuate, extending from suture to suture on spire whorls but obsolete over the base, the whole shell, axials included crossed by narrowly rounded crisp spiral cords, increasing from 6 to 8 on the spire and about 21 on the body-whorl including the base and neck. In addition there are about eight weak spiral threads on the fasciole. Two of the spirals on the shoulder are weaker than the others and the strongest spirals are on the upper part of the base; these have an intermediate thread. The whole surface of the shell is striated by dense axial lines of growth. Spire less than height of aperture plus the canal which is relatively long, oblique and strongly recurved at the tip. Aperture narrowly ovate. Outer lip thickened by a low rounded varix and sculptured within the aperture by twelve narrow but distinct spiral ridges which alternate with the external spirals. Parietal callus heavy, not very wide, with clearly defined edge and bearing odd tubercles below and two or three entering folds above. Colour of shell dull white with three spiral zones of pale yellowish-brown on the body-whorl and the fasciole similarly coloured. Interior of aperture and parietal callus white, porcellanous. Operculum horny, dark-brown, leaf-shaped, with a terminal nucleus.

Height 41 mm.; diameter 16 mm. (Holotype).

Locality: Galathea St. 616 44° 37' S.; 167° 53' E., Milford Sound, 290 metres, 19:1:1952.

REFERENCES.

- DELL, R. K., 1956. The Archibenthal Mollusca of New Zealand. *Dominion Museum Bull.* No. 18, pp. 1-235.
- POWELL, A. W. B., 1924. Notes on New Zealand Mollusca. *N.Z. Journ. Sci. and Tech.*, Vol. 6, pp. 282-286.

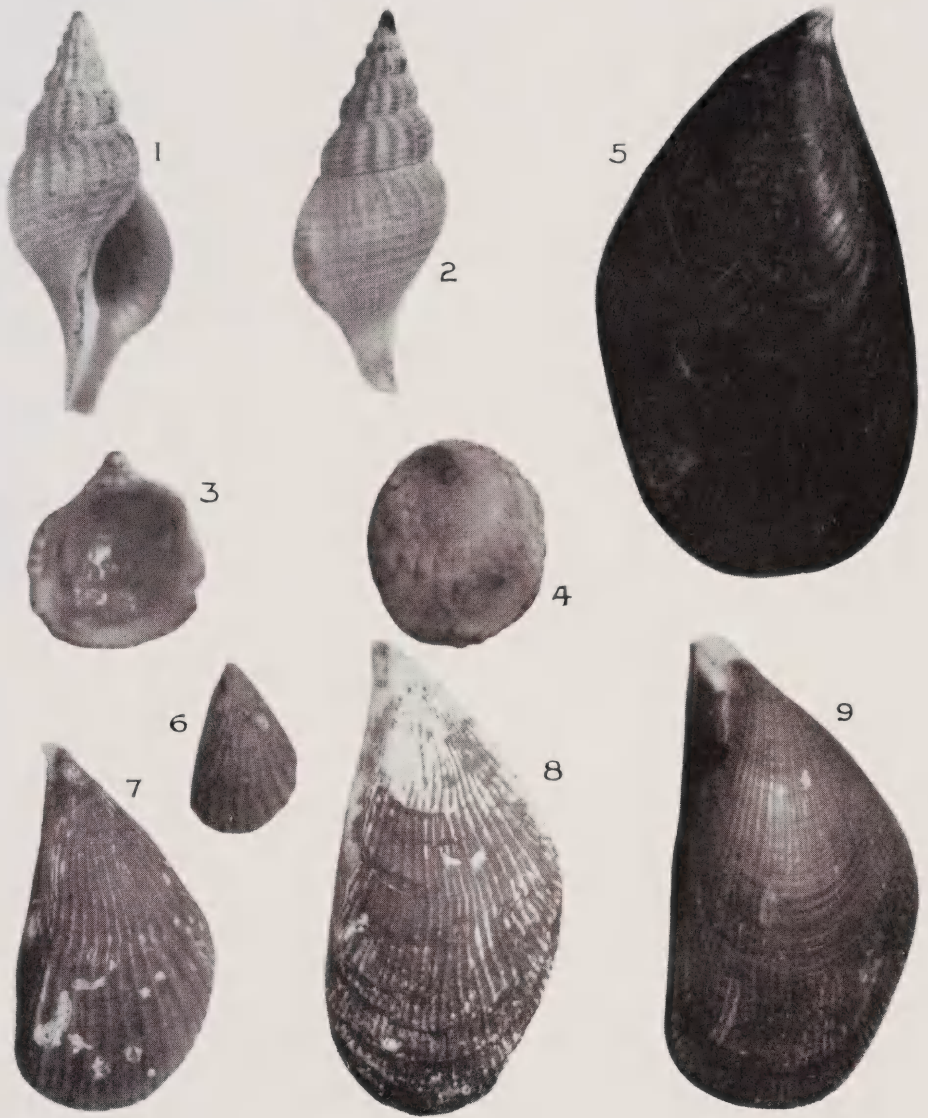


Fig. 1. *Aeneator galathea* n. sp. Holotype 41 mm. x 16 mm.

Fig. 2. *Aeneator galathea* n. sp. Paratype.

Figs. 3, 4. *Sabia wyattae* n. sp. Holotype (Fig. 4.) 16 mm. x 12.65 mm. x 5.7 mm.

Fig. 5. *Mytilus aoteanus* n. sp. Holotype 42 mm. x 76 mm. x 25 mm.

Figs. 6-9. *Aulacomya maoriana* (Iredale, 1913): Halfmoon Bay, Stewart Island (Fig. 6.); Timaru breakwater (Fig. 7.); Lyall Bay, Wellington (Fig. 8.) and Nelson (Fig. 9.).